

CLAIMS

What is claimed is:

1. An interconnect device, comprising:
 - a frame having an upper side and a lower side;
 - a first plurality of beam contacts on the upper side of the frame for connection to contacts of a first component, wherein the first plurality of beam contacts are arranged such that the sum of the sideways wipe forces caused by compression of the first plurality of beam contacts due to connection of the first component to the interconnect device approximately equals zero; and
 - a second plurality of contacts on the lower side of the frame for connection to contacts of a second component, wherein each beam contact of the first plurality of contacts is electrically connected to a contact of the second plurality of contacts.
2. The interconnect device of claim 1, wherein the second plurality of contacts on the lower side of the frame includes beam contacts, and wherein the second plurality of beam contacts are arranged such that the sum of the sideways wipe forces caused by compression of the second plurality of beam contacts due to connection of the second component to the interconnect device approximately equals zero.
3. The interconnect device of claim 1, wherein the first plurality of beam contacts includes:
 - a first portion oriented in a first direction; and
 - a second portion oriented in an opposite direction relative to the first direction.

4. The interconnect device of claim 3, wherein the number of beam contacts of the first portion equals the number of beam contacts of the second portion.

5. The interconnect device of claim 2, wherein:
the first plurality of beam contacts includes a first portion oriented in a first direction and a second portion oriented in an opposite direction relative to the first direction; and
the second plurality of beam contacts includes a third portion oriented in the first direction and a fourth portion oriented in the opposite direction.

6. The interconnect device of claim 5, wherein:
for the first plurality of beam contacts, the number of beam contacts of the first portion equals the number of beam contacts of the second portion; and
for the second plurality of beam contacts, the number of beam contacts of the third portion equals the number of beam contacts of the fourth portion.

7. The interconnect device of claim 1, wherein:
the first component includes an integrated circuit; and
the second component includes a printed circuit board.

8. An interconnect device, comprising:
a frame having an upper side and a lower side;
a first plurality of beam contacts on the upper side of the frame for connection to contacts of a first component, wherein the first plurality of beam contacts are arranged in columns such

that the beam contacts in a first portion of the columns are oriented in a first direction and the beam contacts in a second portion of the columns are oriented in an opposite direction relative to the first direction, such that the sum of the sideways wipe forces caused by compression of the beam contacts in the first and second portions of the columns due to connection of the first component to the interconnect device approximately equals zero; and

a second plurality of contacts on the lower side of the frame for connection to contacts of a second component, wherein each beam contact of the first plurality of contacts is electrically connected to a contact of the second plurality of contacts.

9. The interconnect device of claim 8, wherein first and second portions of the columns are arranged in an every-other-one arrangement.

10. The interconnect device of claim 8, wherein the second plurality of beam contacts are arranged in columns such that the beam contacts in a first portion columns on the lower side of the frame are oriented in the first direction and the beam contacts in a second portions of the columns on the lower side of the frame are oriented the opposite direction, such that the sum of the sideways wipe forces caused by compression of the beam contacts in the first and second portions of the columns due to connection of the second component to the interconnect device approximately equals zero.

11. An assembly, comprising:

a first component having a plurality of contacts;
a second component having a plurality of contacts; and

an interconnect device connected between the first and second components, wherein the interconnect device includes:

a frame having an upper side and a lower side;

a first plurality of beam contacts on the upper side of the frame for connection to the contacts of the first component, wherein the first plurality of beam contacts are arranged such that the sum of the sideways wipe forces caused by compression of the first plurality of beam contacts due to connection of the first component to the interconnect device approximately equals zero; and

a second plurality of contacts on the lower side of the frame for connection to the contacts of the second component, wherein each beam contact of the first plurality of contacts is electrically connected to a contact of the second plurality of contacts.

12. The assembly of claim 11, wherein the second plurality of contacts on the lower side of the frame includes beam contacts, wherein the second plurality of beam contacts are arranged such that the sum of the sideways wipe forces caused by compression of the second plurality of beam contacts due to connection of the second component to the interconnect device approximately equals zero.

13. The assembly of claim 11, wherein the first plurality of beam contacts includes:

a first portion oriented in a first direction; and

a second portion oriented in an opposite direction relative to the first direction.

14. The assembly of claim 13, wherein the number of beam contacts of the first portion equals the number of beam contacts of the second portion.

15. The assembly of claim 12, wherein:
the first plurality of beam contacts includes a first portion oriented in a first direction and a second portion oriented in an opposite direction relative to the first direction; and
the second plurality of beam contacts includes a third portion oriented in the first direction and a fourth portion oriented in the opposite direction.

16. The assembly of claim 15, wherein:
for the first plurality of beam contacts, the number of beam contacts of the first portion equals the number of beam contacts of the second portion; and
for the second plurality of beam contacts, the number of beam contacts of the third portion equals the number of beam contacts of the fourth portion.

17. The assembly of claim 11, wherein:
the first component includes an integrated circuit; and
the second component includes a printed circuit board.

18. A method of fabricating an interconnect device for electrically interconnecting a first component to a second component, comprising:
molding a frame of the interconnect device such that a plurality of electrical conductors are molded into the frame, each electrical conductor having a first beam contact portion

extending from an upper side of the frame and a second beam contact portion extending from a lower side of the frame; and

shaping the electrical conductors such that the first beam contact portions extending from the upper side of the frame are arranged such that the sum of the sideways wipe forces caused by compression of the first beam contact portions due to connection of the first component to the interconnect device approximately equals zero.

19. The method of claim 18, wherein shaping the electrical conductors further includes shaping the electrical conductors such that the second beam contact portions extending from the lower side of the frame are arranged such that the sum of the sideways wipe forces caused by compression of the second beam contact portions due to connection of the second component to the interconnect device approximately equals zero.

20. The method of claim 18, wherein the shaping step occurs after the molding step.

21. An interconnect device for electrically interconnecting a first component to a second component, comprising:

a frame having an upper side and a lower side;
a plurality of electrical conductors contacting the frame, wherein each of the plurality of conductors includes an upper beam contact, a lower contact, an a midsection therebetween, wherein:

the upper beam contacts are for connection to contacts of the first component;
the lower contacts are for connection to contacts of the second component; and

the upper beam contacts are arranged such that the sum of the sideways wipe forces caused by compression of the upper beam contacts due to connection of the first component to the interconnect device approximately equals zero.

22. The interconnect device of claim 21, wherein the lower contacts include lower beam contacts, and wherein the lower beam contacts are arranged such that the sum of the sideways wipe forces caused by compression of the upper beam contacts due to connection of the second component to the interconnect device approximately equals zero.

23. The interconnect device of claim 21, wherein the midsection of at least one of the electrical conductors is molded in the frame.

24. The interconnect device of claim 21, wherein the midsection of at least one of the electrical conductors is disposed in a hole defined by the frame.